Smartgen®

HFT300 Frequency Test Relay

User Manual

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众智电子 **Chinese trademark**

Smartgen® **English trademark**

Smartgen — make your generator ***smart***

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Software Version

Version	Date	Note
1.0	2014-08-07	Original release.
1.1	2014-10-09	Rename the product.

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This manual is suitable for HFT300 frequency test relay only.

Clarification of notation used within this publication.

SIGN	INSTRUCTION
NOTE	Highlights an essential element of a procedure to ensure correctness.
CAUTION!	Indicates a procedure or practice, which, if not strictly observed, could result in damage or destruction of equipment.
WARNING!	Indicates a procedure or practice, which could result in injury to personnel or loss of life if not followed correctly.

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1 SUMMARY

HFT300 frequency test relay is widely used in marine genset field and land genset field. The corresponding over/under frequency relay outputs and alarm protection activates when the frequency has exceeded/fallen below the set value.

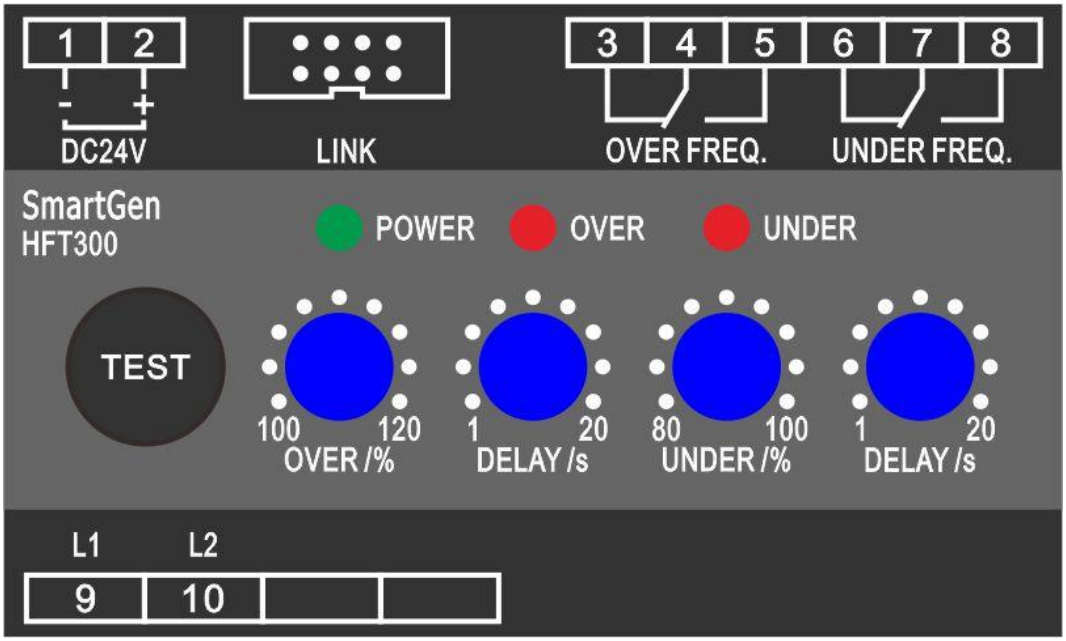
2 PERFORMANCE AND CHARACTERISTICS

- ◆ Suitable for 3-phase 4-wire, 3-phase 3-wire, single phase 2-wire, and 2-phase 3-wire systems with frequency 50/60/400Hz;
- ◆ Over/under frequency protection function;
- ◆ Adjustable potentiometer allows for set value adjusting and delay value setting;
- ◆ 2 relay output；
- ◆ One test button, test the over/under frequency relay and indicator;
- ◆ Widely power supply range DC(8~35)V, suitable to different starting battery voltage environment;
- ◆ 35mm guide rail mounting;
- ◆ Modular design, pluggable terminal, compact structure with easy installation.

3 SPECIFICATION

Parameter	Details
Working Voltage	DC8. 0V to 35. 0V, continuous power supply
Overall Consumption	<0.9W (Standby mode: ≤0.28W)
AC Input	AC50V~ AC620V (ph-ph)
Alternator Frequency	50Hz/60Hz/400Hz
Over Frequency Relay Output	5A AC250V Volts free output
Under Frequency Relay Output	5A AC250V Volts free output
Case Dimensions	89.7mm x 71.6mm x 60.7mm
Working Conditions	Temperature: (-25~+70)°C Humidity: (20~93)%RH
Storage Conditions	Temperature:(-25~+70)°C
Insulation Intensity	Apply AC2.2kV voltage between high voltage terminal and low voltage terminal; The leakage current is not more than 3mA within 1min.
Weight	0.24kg

4 PANEL TERMINAL DESCRIPTION



Description of terminal connection：

NO.	Functions		Cable Size	Remark	
1	B-		1.0mm^2	Connected with negative of starter battery.	
2	B+		1.0mm^2	Connected with positive of starter battery.	
3	OVER FREQ. RELAY	Normally Close	2.5 mm^2	Active when the frequency has exceeded the set value and the delay timer has expired.	Normally open; Volts free output; 5A Rated
4		COM			
5		Normally Open			
6	UNDER FREQ. RELAY	Normally Close	2.5 mm^2	Active when the voltage has exceeded 50V while the frequency has fallen below the set value and the delay timer has expired.	
7		COM			
8		Normally Open			
9	L1		1.0 mm^2	Phase Voltage Input	
10	L2		1.0 mm^2		
LINK Port	Used for parameters setting.				

5 FUNCTION DESCRIPTION

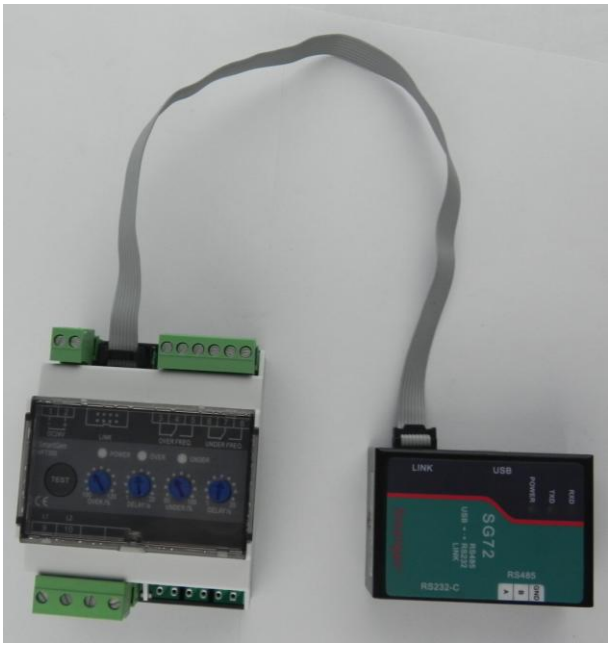
Item	Description
Power Indicator	Power supply indicator; It is illuminated when the relay is powered up. (green light)
OVER Indicator	Over frequency Indicator; It flashes once per second when the frequency has exceeded the set value and illuminated when the delay timer has expired. if the frequency return within the set value range, alarm is removed automatically and indicator is extinguished.(red light)
UNDER Indicator	Under frequency Indicator; It flashes once per second when the frequency has fallen below the set value and illuminated when the delay timer has expired. if the frequency return within the set value range, alarm is removed automatically and the indicator is extinguished.(red light)
TEST Button	Pressing and holding the button for 3 seconds, the over frequency relay and over frequency indicator output; Press the button and release the button, within 1 second, again press it for 3 seconds, under frequency relay and under frequency indicator output.
OVER /% Over Frequency Potentiometer	Used for adjusting over frequency set value. Range: (100~120)%; Setting value is the percentage of rated frequency value.
DELAY/s Delay Value Potentiometer	Used for adjusting over frequency delay value. Range: (1~20)s.
UNDER /% Under Frequency Potentiometer	Used for adjusting under frequency set value. Range: (80~100)%; Setting value is the percentage of rated frequency value.
DELAY /s Delay Value Potentiometer	Used for adjusting under frequency delay value. Range: (1~20)s;

6 SCOPES AND DEFINITIONS OF PROGRAMMABLE PARAMETERS

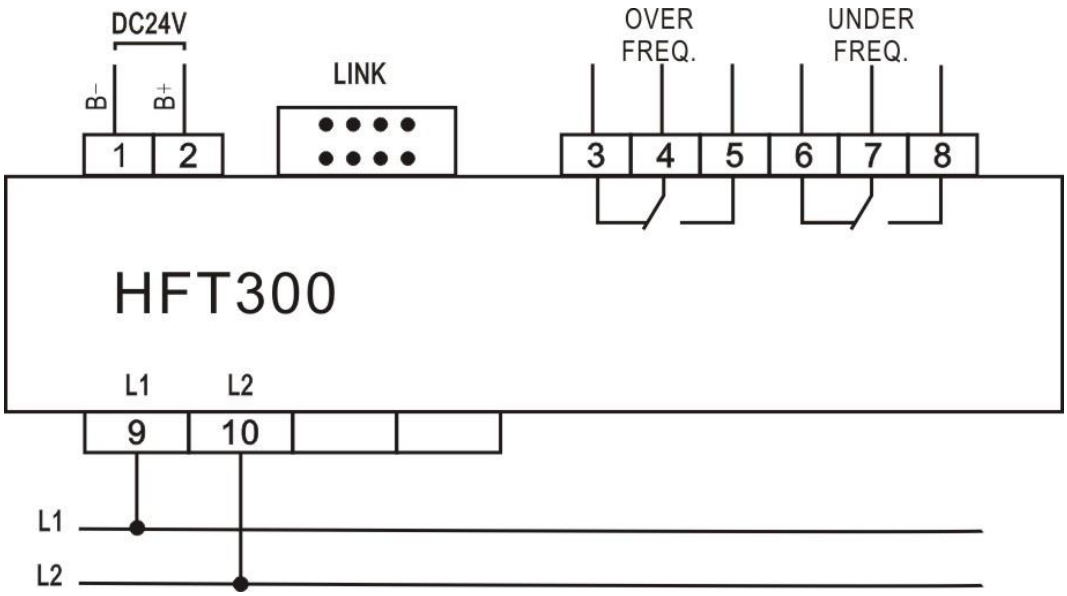
No.	Items	Parameters	Defaults	Description
1	Gen Rated Frequency	(10.0-400.0)Hz	50.0	
2	Communication Address	(1-254)	1	

PC Program Connection:

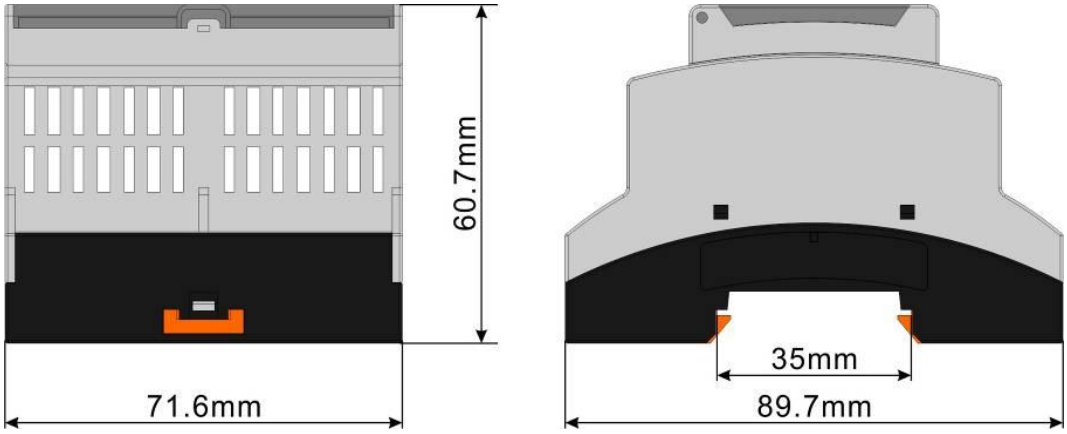
Parameters setting and real-time monitoring can be implemented via LINK port by using PC software and an SG72 adapter which produced by our company. As follows:



7 TYPICAL DIAGRAM



8 INSTALLATION DIMENSIONS



1) Output And Expand Relays

All outputs are relay contact output type. If need to expand the relays, please add freewheel diode to both ends of expand relay's coils (when coils of relay has DC current) or, add resistance-capacitance return circuit (when coils of relay has AC current), in order to prevent disturbance to controller or others equipment.

2) Withstand Voltage Test

⚠**CAUTION!** When relay had been installed in control panel, if need the high voltage test, please disconnect relay's all terminal connections, in order to prevent high voltage into relay and damage it.